

**REMARKS**

Claims 1-11 are pending and under consideration in the above-identified application.

Claims 12-20 stand withdrawn from consideration.

In the Office Action of May 28, 2008, claims 1-11 were rejected.

With this Amendment, claim 1 is amended. Accordingly, claims 1-11 remain at issue.

**I. Objection To Drawings**

Fig. 2 was objected to for failing to show a reference element disclosed in the specification.

With this amendment, the specification is amended to reference the proper elements of the figures.

No new matter was introduced in making these amendments. Accordingly, Applicant respectfully requests withdrawal of these objections.

**II. 35 U.S.C. § 102 Anticipation Rejection of Claims**

Claims 1-4, 6-7 and 11 were rejected under 35 U.S.C. § 102(e) as being anticipated by *Inagaki* (U.S. 6,765,246) (“*Inagaki*”). Applicant respectfully traverses this rejection.

In relevant part, independent claim 1 now recites a transfer register extending in a vertical direction and an impurity region continuously formed in the semiconductor region in a direction orthogonal to the transfer register.

This is clearly unlike *Inagaki*, which fails to disclose a transfer register extending in a vertical direction and an impurity region continuously formed in a semiconductor region in a direction orthogonal to the transfer register. Instead, *Inagaki* discloses an impurity region 13

extending in a vertical direction, which is parallel to the direction of the transfer region 14. See, U.S. Pat. No. 6,765,246, Col. 6, l. 34-52; Fig. 2 & 3. Meaning that the impurity region and transfer register in *Inagaki* both extend in the vertical direction. Since *Inagaki*, discloses both the transfer register and the impurity region extending the vertical direction, it fails to disclose a required element of the claim.

As the Applicant's specification teaches, by providing an impurity region formed continuously in a direction orthogonal to the transfer direction of a transfer register which extends in the vertical direction, a sufficient potential barrier can be formed between the photo-sensors adjacent to each other preventing the vertical mixing of signals. See, U.S. Pat. Pub. 2006/0163619 Para. [0032]. Because the apparatus disclosed in *Inagaki* lacks this feature, it is incapable of producing the desired effect.

Therefore, because *Inagaki* fails to disclose, or even fairly suggest, every feature of claims 1, the rejection cannot stand. Because claims 2-4, 6-7 and 11 depend either directly or indirectly from claim 1, they are allowable for at least the same reasons.

### III. **35 U.S.C. § 103 Obviousness Rejection of Claims**

Claims 5 and 8-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Inagaki* in view of *Komatsu* (JP 02002231924) ("*Komatsu*"). Applicant respectfully traverses this rejection.

Claim 1 is allowable over *Inagaki* as discussed previously.

*Komatsu*, similarly, fails to disclose a transfer register extending in a vertical direction and an impurity region continuously formed in a semiconductor region in a direction orthogonal

to the transfer register. Instead, *Komatsu* discloses a transfer and impurity region both extending vertically. See, JP 02002231924, Para. [0016]. Since *Komatsu* discloses the transfer register extending in the same direction as the a impurity region, it fails to disclose a required element of the claim.

Therefore, because *Inagaki*, *Komatsu*, and any combination of them fails to disclose or even fairly suggest every feature of claim 1, the rejection cannot stand. Because claims 5 and 8-10 depend, either directly or indirectly, from claim 1, they are allowable for at least the same reasons.

**Conclusion**

In view of the above amendments and remarks, Applicant submits that all claims are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

Dated: July 9, 2008

By: /David R. Metzger/  
David R. Metzger  
Registration No. 32,919  
SONNENSCHN NATH & ROSENTHAL  
LLP  
P.O. Box 061080  
Wacker Drive Station, Sears Tower  
Chicago, Illinois 60606-1080  
(312) 876-8000